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(54) Title: MEMBRANE AND USE THEREOF

(57) Abstract: The present invention relates to a solid multicomponent membrane for use in a reactor where the membrane comprises a mixed metal oxide having a structure represented by the formula:  $\text{La}_{1-x}\text{Ca}_x(\text{Fe}_{1-y-y'}\text{Ti}_y\text{Al}_{y'})_w\text{O}_{3-d}$  wherein x, y, y', w, and d each represent a number such that  $0.1 \leq (y+y') \leq 0.8$ ,  $0.15 \leq (x+y') \leq 0.95$ ,  $0.05 \leq (x-y) \leq 0.3$ ,  $0.95 < w < 1$ , and d equals a number that renders the compound charge neutral and is not less than zero and not greater than about 0.8. Furthermore, the present invention relates to a use of the membrane in a reactor for generating heat or for generating synthesis gas.

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